

**REMARKS**

Claims 1, 3, 7, 8, and 14-17 are pending in this application. Non-elected claims 7 and 8 have been withdrawn from consideration by the Examiner. By this Amendment, claims 7 and 15 are amended and claims 4-6 and 9-13 are canceled. Support for the amendments to the claims may be found, for example, in the specification. No new matter is added.

Entry of the amendments is proper under 37 CFR §1.116 because the amendments: (a) place the application in condition for allowance (for the reasons discussed herein); (b) do not raise any new issue requiring further search and/or consideration (as the amendments amplify issues previously discussed throughout prosecution); (c) satisfy a requirement of form asserted in the previous Office Action; (d) do not present any additional claims without canceling a corresponding number of finally rejected claims; and (e) place the application in better form for appeal, should an appeal be necessary. The amendments are necessary and were not earlier presented because they are made in response to arguments raised in the final rejection. Applicants respectfully request entry of the amendments.

In view of the foregoing amendments and following remarks, Applicants respectfully request reconsideration and allowance.

**I. Claim Objection**

The Office Action objects to claim 15 for an informality. Claim 15 is amended in light of the Examiner's helpful suggestion. Accordingly, Applicants respectfully request reconsideration and withdrawal of the objection.

**II. Rejection under 35 U.S.C. §112, Second Paragraph**

The Office Action rejects claim 15 as being indefinite under 35 U.S.C. §112, second paragraph. By this Amendment, claim 15 is amended in light of the Examiner's comments. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection.

**III. Double Patenting**

The Office Action objects to claim 9 as being a substantial duplicate of claim 3. By this Amendment, claim 9 is canceled, rendering its objection moot.

**IV. Rejection Under 35 U.S.C. §103**

The Office Action rejects claims 1, 3, 9, and 14-17 under 35 U.S.C. §103(a) over U.S. Patent No. 6,941,572 to Horie et al. ("Horie") in view of U.S. Patent No. 6,337,060 to Hiraki et al. ("Hiraki") as evidenced by Perry's Handbook of Chemistry ("Perry's"). By this Amendment, claim 9 is canceled, rendering its rejection moot. As to the remaining claims, Applicants respectfully traverse the rejection.

The combination does not teach or suggest, or establish a reason or rational for providing "an amine substance having a boiling point of 50°C or higher and 300°C or lower" as claimed.

Horie discloses a suspension that includes tetramethylammonium hydroxide. Horie does not disclose any other amine substance dispersed in the suspension containing fine diamond particles. The Office Action asserts that tetramethylammonium hydroxide has a boiling point within the claimed range. See Office Action at page 5 and Perry's, MSDS Number: T1816 at "9. Physical and Chemical Properties". However, tetramethylammonium hydroxide decomposes to trimethylamine and CH<sub>3</sub>OH upon distillation and, thus, tetramethylammonium hydroxide does not have a boiling point. See Tetramethylammonium hydroxide, The Merck Index, 7<sup>th</sup> Ed., page 1025 (submitted herewith). Thus, MSDS number T1816 describes the properties of tetramethylammonium hydroxide dissolved in methanol (20% solution). See Perry's, MSDS Number: T1816 at "1. Product Identification." Because tetramethylammonium hydroxide decomposes upon distillation, the listed 60 to 65°C represents the boiling point of the methanol, not the actual boiling point of tetramethylammonium hydroxide.

Horie does not teach or suggest "an amine substance having a boiling point of 50°C or higher and 300°C or lower" as claimed. Hiraki and Perry's does not cure at least this deficiency.

Claim 1 would not have been rendered obvious by the combination of applied references. Claims 3 and 14-17 depend from claim 1 and, thus, also would not have been rendered obvious by the applied references. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection.

**V. Rejoinder**

Applicants also respectfully request rejoinder of non-elected method claims 7 and 8. Where product and process claims are presented in the same application, Applicants may be called upon under 35 U.S.C. §121 to elect claims to either the product or process. MPEP §821.04. However, in the case of an elected product claim, rejoinder will be permitted when a product claim is found allowable and the withdrawn process claim depends from or otherwise includes all the limitations of an allowed product claim. *Id.* Because process claims 7 and 8 include all the limitations of product claim 1, process claims 7 and 8 must be rejoined with the product claims when the product claims are found allowable. Because the product claims are believed to be allowable for at least the reasons presented above, Applicants respectfully request withdrawal of the Restriction Requirement and rejoinder of claims 7 and 8.

**VI. Conclusion**

In view of the foregoing, Applicants respectfully submit that this application is in condition for allowance. Applicants earnestly solicit favorable reconsideration and prompt allowance of the application.

Should the Examiner believe that anything further would be desirable to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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JAO:RRB/rrb

Attachment:

The Merck Index, 7<sup>th</sup> Ed., page 1025

Date: July 17, 2009

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# Tetramethyl-*p*-phenylenediamine

1025

in benzene, chloroform, toluene, carbon disulfide, slightly in ether. *Protect from light.*

**Med. Use:** Has been recommended as a surgical dusting powder and as an antiseptic ointment.

**Tetralin®.** 1,2,3,4-Tetrahydronaphthalene; Tetranap.  $C_{10}H_{12}$ ; mol. wt. 132.20. C 90.85%, H 9.15%. Prep'd. by catalytic hydrogenation of purified naphthalene. See ref. under Decalin.

Liquid. Odor resembling that of a mixture of benzene and menthol.  $d_4^{20}$  0.9702;  $d_4^{25}$  0.9662. Volatile with steam;  $m. -31.0^\circ$ ;  $b_{760}$  207.2°;  $b_{100}$  181.8°;  $b_{200}$  157.2°;  $b_{100}$  135.3°;  $b_{60}$  121.3°;  $b_{10}$  110.4°;  $b_{20}$  93.8°;  $b_{10}$  79.0°;  $b_5$  65.3°;  $b_{1.0}$  38.0°.  $n_D^{20}$  1.54135;  $n_D^{25}$  1.53919. Flashpoint, open cup 171°F (77°C), closed cup 180°F (82°C). Insoluble in water; miscible with ethanol, butanol, acetone, benzene, ether, chloroform, petr. ether, Decalin; soluble in methanol: 50.6% w/w. Prolonged, intimate contact with air may cause the formn. of tetralin peroxide which may cause explosion of tetralin distn. residues. Peroxide formn. is prevented by the addn. of an antioxidant, such as hydroquinone.  $LD_{50}$  orally in rats: 2.86 g./kg.

**Use:** Degreasing agent. Solvent for naphthalene, fats, resins, oils, waxes, used instead of turpentine in lacquers, shoe-polishes, floorwaxes.

**Human Toxicity:** May be irritating to skin, eyes and mucous membranes and, in high concentrations, narcotic. In experimental animals has produced catarracts and kidney injury.

**Tetralol.** Reported to be 1,2,3,4-tetrahydro- $\beta$ -naphthol.  $LD_{50}$  orally in rats: 1.0 ml.

**Tetram®.** *O,O*-Diethyl *S*-( $\beta$ -diethylamino)ethyl phosphorothiolate; *O,O*-diethyl *S*-2-diethylaminoethyl phosphorothiolate; (2-diethylamino)ethylphosphorothioic acid *O,O*-diethyl ester; Metramac; Amiton; Inferno.  $C_{16}H_{24}NO_3PS$ ; mol. wt. 269.35. C 44.59%, H 8.98%, N 5.20%, O 17.82%, P 11.50%, S 11.91%. Prep'n.: Ghosh, Newman, *Chemistry & Industry* 1955, 118; Fukuto, Stafford, *J. Am. Chem. Soc.* 79, 6983 (1957).

Liquid.  $b_{0.2}$  110°.  $n_D^{27}$  1.4555.  $(C_2H_5O)_2P(=O)SCH_2CH_2N(C_2H_5)_2$

Used as the acid oxalate (hydrogen oxalate),  $C_{16}H_{24}N_2O_6PS$ , crystals from isopropanol + ether,  $m. 98-99^\circ$ .

**Use:** Contact insecticide, milicide.

**Tetramethylammonium Hydroxide.**  $(CH_3)_4N.OH$ ; mol. wt. 91.15.  $C_4H_{11}NO$ ; C 52.70%, H 14.38%, N 15.37%, O 17.55%.

Usually marketed in 10% aq. soln. Strong ammonia-like odor.  $d_4^{25}$  about 1.00. The free base is known only in soln. or as a solid pentahydrate, forming colorless, deliquescent needles melting at 63°. On distillation, it decomposes to trimethylamine and  $CH_3OH$ . It is a very strong base, readily absorbing  $CO_2$  from the air. *Keep well closed.*

**Tetramethylammonium Iodide.**  $(CH_3)_4NI$ ; mol. wt. 201.06.  $C_4H_{11}IN$ ; C 23.89%, H 6.02%, I 63.14%, N 6.97%.

Pale-yellow crystals. Begins to decompose at about 230°.  $d. 1.84$ . Sparingly soluble in water, freely in absolute alcohol; insoluble in chloroform, ether.

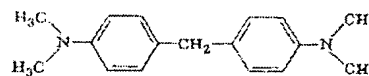
**Med. Use:** Emergency disinfection of drinking water. Required dosage: 8 p.p.m. of iodine.

**Tetramethyldiaminobutane.**  $(CH_3)_2N.CH_2.CH_2.CH_2.CH_2.N(CH_3)_2$ ; mol. wt. 144.26.  $C_8H_{20}N_2$ ; C 66.60%, H 13.98%, N 19.42%. From root and herb of *Hyoscyamus reticulatus* L. and *H. muticus* L., *Solanaceae*.

White crystals; penetrating odor and sharp, scratching taste.  $b. 169^\circ$ . Soluble in water, alcohol, ether.

**Ref.** Konowalowa, Magidson, *Arch. Pharm.* 266, 449 (1928).

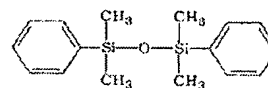
**4,4'-Tetramethyldiaminodiphenylmethane.** Tetra-base.  $C_{17}H_{22}N_2$ ; mol. wt. 254.36. C 80.27%, H 8.72%, N 11.01%. Made by heating dimethylaniline with 40% formaldehyde and concentr. HCl.



White to bluish-white, lustrous leaflets; sublimes without decomposition.  $m. 90-91^\circ$ .  $b. 330^\circ$ . Insoluble in water; soluble in benzene, ether, carbon disulfide, acids; slightly soluble in cold alcohol, more soluble in hot alcohol.

**Use:** In the form of the hydrochloride as a reagent for lead.

**1,1,3,3-Tetramethyl-1,3-diphenyldisiloxane.**  $C_{18}H_{22}OSi_2$ ; mol. wt. 286.53. C 67.08%, H 7.74%, O 5.59%, Si 19.59%. Prepared by hydrolyzing dimethylphenylchlorosilane and dimethylphenylbromosilane in iced water: Lewis, *J. Am. Chem. Soc.* 70, 1115-1117 (1948).



Liquid;  $d_4^{20}$  0.9763;  $b_1$  110-111°;  $n_D^{20}$  1.5122.

**Tetramethylenedisulfoetramine.** 2,6-Dithia-1,3,5,7-tetraazacyclo[3.3.1.1<sup>1,3</sup>.1<sup>3,5</sup>]decane-3,2,5,6-tetroxide.  $C_4H_8N_4O_4S_2$ ; mol. wt. 240.27. C 20.00%, H 3.35%, N 23.32%, O 26.64%, S 26.69%. Prep'd. from sulfamide,  $H_2N.SO_2.NH_2$ , and formaldehyde in 60%  $H_2SO_4$ : Hecht, Henecka, *Angew. Chem.* 61, 365 (1949).

Cubic crystals from acetone, decomp. 255-260°. *Violent convulsive poison!* Stable to acids and alkalis in dilutions up to 0.1 N. Decomp. upon prolonged boiling of aq. solns. Solubility in water about 0.25 mg./ml. Slightly soluble in acetone. Insoluble in methanol, ethanol.

**Use:** Experimental poison. Lethal dose for mice 0.20 mg./kg. orally or subcutaneously: Hagen, *Deut. med. Wochschr.* 75, 183 (1950).

**Tetramethyl-*p*-phenylenediamine.** Wurster's reagent.  $(CH_3)_2N.C_6H_4.N(CH_3)_2$ ; mol. wt. 164.24.  $C_{10}H_{16}N_2$ ; C 73.12%, H 9.82%, N 17.06%.

Leaflets.  $m. 51^\circ$ .  $b. 260^\circ$ . Slightly soluble in cold water; more soluble in hot water; freely soluble in alcohol, chloroform, ether, petrol. ether.

**Use:** In the form of the hydrochloride as a reagent in anal. chemistry.

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